

Psychiatric Diagnoses and Medications: Do They Cause Gun Violence?

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Introduction

The news media has written a number of articles regarding the connection between psychiatric medication and gun violence. They have cited several cases of mass gun violence where the offender has been on psychiatric medication. Those in the gun industry claim that guns do not make someone become a killer, but rather it is the medication and mental illness that is the cause. This article explores the clinical and legal aspects of the side effects of psychiatric medications. Although some medications may cause or increase psychotic symptoms, such as anger, agitation, and aggression, the scientific research to tie psychiatric medication to violence still produces paradoxical results.

The general public (and occasionally the news media and politicians) may hold a belief that people who commit violent crimes must have a serious mental illness. In examining the research, these claims are unfounded. The risk of dangerous behavior appears to be a more reliable factor and one on which to focus to prevent future gun violence.¹

While there has been a focus in our country on protecting our Second Amendment rights, it is important to remember that this right has two parts: the right to bear arms and the right to be protected from violence.¹ How are we doing in protecting our citizens from violence? More than 4600 young people between the ages

of 10 and 24 were victims of homicide in 2016. That is equal to an average of 13 dying each day.²

This article reviews research studies on psychiatric medications and the side effects of suicide and violence. The article also explores a number of legal cases against drug companies where victims, their families, or offenders claim that the drugs caused the suicidal or aggressive behavior, or led them to commit a crime. A recommendation is that the FDA should request drug companies to conduct scientific research by a neutral party regarding the potential connection or lack thereof between medication and violence.

Drug companies are one of the biggest contributors to political campaigns. Additionally, politicians can be influenced by the National Rifle Association (NRA) and gun distributors who also contribute significant money to various political campaigns. Patients, consumers, and medical providers are at a disadvantage in a country where rules are made by politicians who may be heavily influenced by lobbyists who represent drug corporations and the gun industries.

This issue of gun violence is complex and multifaceted, and cannot have a single etiology. This article explores the various significant factors involved.

Relationship between Guns and Violence

Many people believe access to firearms and firearm regulations play a significant role in gun violence. The literature indicates that geographic areas with higher gun possession rates have higher numbers of homicidal deaths.³ A cross-sectional study from January 2010 to December 2014 was conducted in 3108 counties in 48 states on firearm suicide and homicide data. States that had strong firearm laws were linked with lower firearm suicide and homicide rates. States with

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weak firearm policies only had lower numbers of firearm homicides if states with strong laws surrounded them.⁴

Compared to all other developed nations, the US has the highest rate of gun ownership and homicides, while having the weakest gun control legislation.³ Wyoming has the highest percentage of homes containing guns, highest percentage of student carrying guns to school (63%), and highest suicide rate.³ Massachusetts, on the other hand, has the lowest percentages in these categories. Only 2.5% of students brought a gun to school.

While gun owners often claim self-defense as their reason for having a gun in the house, there is no actual evidence to support this assertion.³ Almost 50% of gun owners say they have a gun for protection according to the Pew Research Center. However, according to Harvard University scientists, who analyzed statistics from the National Crime Victimization Survey, less than 1% of crimes between 2007 and 2011 included people defending themselves with a gun. In fact, the risks often outweigh any benefit.⁵ Many people who have a gun are not properly trained to use it. Even within law enforcement, while they do receive training, there is not a performance validation standard.⁵

Additionally, firearm regulations allow for loopholes. While the Brady Law asserts that federal background checks are required for retail gun sales, this is not required for private sales, which account for 40% of gun sales.³

Despite conflicting claims by parents, many children actually know where their parents store firearms and have accessed them.³ Over 75% of first and second graders know where their parents keep guns in the house, and 36% shared that they had handled them, which contradicted reports by their parents.²

News Media and Scientific Journals Warn of Psychiatric Drug Connection to Violence

News media reports have drawn attention to various mass shooting incidents where the shooter was on some type of psychiatric medication and have attempted to link medication as the cause of their actions.⁶ Selwyn Duke in 2018 wrote an article entitled, "From Prozac to Parkland: Are Psychiatric Drugs Causing Mass Shootings?" He reported that the shooter from Parkland, FL (who murdered 17) was on medication for emotional issues, according to his aunt.⁶

Eleven other cases were mentioned between 1988 and 2018 which involved medications including the mass killer at Columbine who was taking fluvoxamine (an SSRI medication with the brand name Luvox, approved for OCD in the US but approved for depression

in Europe).⁷ In 1989, within a month of starting fluoxetine (Prozac), a 47-year-old man in Kentucky shot 20 workers at the Standard Gravure Corp, nine of whom were killed. In 2005 a 16-year-old taking fluoxetine shot and killed nine people, while wounding another five, and then killing himself on the Red Lake Indian Reservation.⁷

In 2010, a 57-year-old attorney in Chicago killed himself by stepping in front of a train.⁸ Just days before he had started taking paroxetine (Paxil). A lawsuit was brought against the drug company GlaxoSmithKline (GSK) claiming the pain caused by the drug led to his suicide. The nine-person jury found the company liable and his widow was awarded \$3 million. Her attorneys stated that GSK had known for years that suicidality was a risk for people of all ages but had ignored the evidence from the clinical trials. On the black box warning label, it only said suicidality was a risk for people below the age of 24. During the trial, GSK claimed it should not be held responsible because the FDA had not required them to include a suicide risk. This was the second case of someone taking paroxetine and committing suicide that went to court. In 2003, Donald Schell killed his family and then himself, while under the influence of this medication. The plaintiff won a multimillion-dollar settlement.⁸

In 2004 and 2007, the FDA eventually placed a black box warning on a number of psychiatric medications about suicidality (not homicide, although some believe suicide is a kind of homicide) with people younger than 24. There are also clinical guidelines that young people on antidepressant medications should be evaluated frequently for any indications of self-destructive ideas. There are a number of cases of combat veterans who returned to the US and became suicidal or homicidal where the family blamed the medication, including antimalaria and antismoking medication varenicline (Chantix). Neither of these are psychiatric drugs.⁸

NRA Telling Doctors to "Stay in Their Lane"

In a position paper authored by the American College of Physicians, doctors sought to find a comprehensive approach to reduce gun violence. The NRA tweeted a response to doctors to "stay in their lane" and that they should not be involved in discussions of gun violence. This tweet came only hours before the mass shooting in Thousand Oaks, CA. Doctors have been pushing back and "...pledge to talk to our patients about gun violence whenever risk factors are present." One doctor had asked, "Where are you when I'm having to tell all those families their loved one has died?"⁹

Numerous medical professionals have responded, arguing that they are the ones removing bullets from countless victims and therefore, this is exactly the lane they should be in. The NRA claimed that this paper was only interested in pseudoscience that would support antigun policies. Many doctors responded that they are not antigun, but are acknowledging this is a national health problem that needs to be addressed by different sides coming together.¹⁰ It is significant to note that a recent Medscape poll revealed that 57% of physicians felt they had a responsibility to discuss gun safety; however, physicians who own a gun were less likely to feel responsible for gun safety education than those who don't own a gun.¹¹

The Next Generation of Doctors

The NRA will not have an easy time with the next generation of doctors either. Medical students across the country have been mobilizing and demanding that gun violence be seen as a public health issue.¹¹ Michael Bagg, a first-year medical student in 2017, was greatly impacted by the Las Vegas shooting. He worked with other students and faculty to create a five-part elective course focused on gun violence. The first class in February of 2018 had 90 students and faculty in attendance. Some of the content included treating gunshot wounds, determining patient threat risk, and advocating for policy changes around gun violence.¹¹

Illana Rosman, MD, an associate professor at Washington University School of Medicine, also took up the charge as she realized that she had not learned anything about gun violence while in medical school between 2004 and 2008.¹¹ She is cochair of the Gun Violence Prevention Task Force for the American Medical Women's Association and is working on a tailored curriculum to be used during all four years of medical clerkship. During the focus on pediatrics, topics could include safe storage of firearms and accidental injuries. During psychiatry courses, gun access becomes relevant when discussing suicide. The goal of the curriculum is to acknowledge gun violence as a public health issue, learn how to advocate, and to educate medical students of the cultural, political, and legal aspects of this issue.¹¹

Gun Research and Politics

In a recent poll from Medscape, 72% of physicians stated that they saw gun violence as a public health threat.¹¹ Yet unlike other public health crises like the opioid epidemic, there has been very little research done on gun violence, and the reason appears to lie in politics. The NRA pushed to exclude gun violence from federal public health activities following the publication of a 1993 study funded by the CDC (Centers

for Disease Control and Prevention) that concluded that a gun in the home increased the risk of homicide.¹² The NRA then began to lobby for the CDC to be eliminated. While the CDC survived, a clear message was sent that gun-related research could place the agency at risk.

The NRA lobbied Congress to pass the Dickey Amendment which essentially stopped the CDC from firearm research and injury prevention. It has been reauthorized by Congress every year since its conception in 1996. In 2011 this amendment extended to the National Institute of Health (NIH) in addition to the CDC. This was in response to the NIH publishing research it had funded on the connection between gun possession and assaults.¹² The 2015 House Speaker John Boehner commented regarding the blockage of federal funds for research into gun violence as a public health issue, "I'm sorry, but a gun is not a disease."¹³

Jay Dickey, a former Republican congressman from Arkansas and the namesake of the amendment, became an unlikely supporter for gun research before his death in 2017. After seeing mass shootings occurring repeatedly, he began advocating for gun violence to be researched by the CDC. He shared, "We need to turn this over to science and take it away from politics."¹⁴

Certain politicians have advocated for gun control and research over the years. In 2012 after the Sandy Hook tragedy in Newtown, CT, President Obama directed the CDC to research gun violence prevention, yet the CDC remained hesitant. He also pushed Congress to direct funding for the CDC on this issue but it was denied.¹² President Obama was again denied by House appropriators in 2015 when they refused a bid by his administration to allocate \$10 million for research.¹⁵ After the gun massacre in Las Vegas in 2017, two Democratic leaders, US Senators Chris Murphy (D-CT) and Amy Klobuchar (D-MN), advocated strongly for new gun control measures, at a minimum wanting to strengthen the national firearm background check system.¹⁴

Yet the issue of gun violence prevention is not clear cut across political party lines. A July 2018 bid by New York Democratic Representative Nita Lowey to provide funding for firearm prevention research failed 20-32, in part helped by two Democrats, Representatives Henry Cuellar of Texas and Sanford Bishop of Georgia, who voted with the Republican party.¹⁵

As the CDC learned, one's stance on this issue will have political ramifications. Dean Winslow, MD, a Stanford University Professor and a retired Air Force colonel, criticized the general availability of certain types of firearms, and stated this halted his chances

for a high-level health post in the Trump administration. Yet after his time as a surgeon in Iraq and Afghanistan, seeing the horrific damage caused by assault weapons, he could not be silent. He is one of the founders of SAFE, (Scrubs Addressing the Firearms Epidemic), a group of Stanford University physicians and medical students.¹⁵

In March 2018, due to increased public concern around gun issues, following numerous mass shootings, Congress reached a compromise.¹² While the Dickey Agreement remained, there was a report that accompanied this spending bill. In this report it was clarified that this amendment does not prohibit funding related to researching the causes of gun violence. Yet while some Democrats have applauded this as a victory, many Republicans and the NRA claim it would not make a difference. Gun researchers, advocates of guns rights, and public health specialists all claimed the significance of the clarification was minimal.¹⁶ As stated in the text of the bill, “None of the funds made available in this title may be used, in whole or in part, to advocate or promote gun control.”¹⁵ However, the question is when would research cross a line into advocating gun control and thus trigger a similar response to what happened following the CDC’s research publication in 1993? Ultimately, money is what matters. This compromise does not appear to have much of a bite if there is no funding available for research on gun violence.¹²

The National Institute of Justice (NIJ) has been able to carry out gun-related studies.¹⁴ From 1993 through 1999 they funded 32 gun-related studies. There were no studies from 2009 to 2012, yet after the Sandy Hook school tragedy (Newtown, CT), they resumed funding. Tactics for researchers looking for private funding have had to change. Certain words like “gun” or “firearm” must be avoided in the titles in order to prevent a political backlash.¹⁴ Currently the NIJ has 53 awards listed under Gun Violence, with the total amount awarded of \$27,843,987. It has several open financial research awards. Northeastern University was awarded almost \$500,000 in 2018 with a research title: The Nature, Trends, Correlates and Prevention of Mass Public Shootings in America, 1976 – 2018.¹⁷

Mental Illness and Mass Shootings

What makes an event a mass shooting? The FBI previously had defined it as, “four or more people at one location within one event.”¹⁸ Dr. Freitas at George Washington University shared that in 2012 – 2013 the FBI’s definition changed to, “three or more killings in a single incident and in a place of public use.”¹⁸

Research indicates that one in five Americans are suffering from mental illness.¹⁹ However, psychiatric disorders are not generally predictive of violent outbursts.¹⁹ People with major mental illnesses are 2.5 times more likely to become victims of violent crime than the general public.¹⁹

There is a statement from an NRA spokeswoman who insisted that Nicolas Cruz, the 19-year-old Parkland shooter who used a semiautomatic assault rifle at Marjorie Stoneman Douglas High School, was an “insane monster” who should not have had any access to weapons.¹⁹ The news media reported that Cruz supposedly had a checkered history of jealous and violent outbursts, but that is not considered a mental illness, nor did he have a psychiatric diagnosis.¹⁹

Psychiatrist Michael Stone in 2015, researched a comprehensive data base of over 230 mass murders committed in the US.¹⁹ He reported that 25% of these offenders were “clearly mentally ill.” He also indicated that the public believes that because someone has committed a deadly act, they must be “crazy.” Dr. Stone mentioned that the majority of rage-filled, extremist men holding grudges who are involved in this type of killing, are not considered mentally ill.

What is often confused is the idea of dangerousness.²⁰ A contract killer or a gang member may kill many people in their lifetime, yet the public does not tend to think of them as “crazy.” In fact, they are choosing to commit violent acts with full understanding of the nature of their acts and consequences. They have specific motivations, such as monetary gain or the respect and right to belong to a specific group. Research illustrates the error of associating dangerousness with mental illness. As the American Medical Association *Journal of Ethics* indicated in one of their articles: “Violence is not a diagnosis nor is it a disease. Potential to do harm is not a symptom or a sign of mental illness, rather it must be the central consideration when assessing future dangerousness.”²⁰

According to the American Psychiatric Association, mentally ill people account for only 3% of all violent crime (other organizations have stated it is between 3% and 5%).¹⁹ However, one in five Americans experience mental illness every year. The National Center for Health Statistics also indicated that less than 5% of 120,000 gun related killings in the US (between 2001 and 2010) were committed by people diagnosed with a mental health disorder.¹⁹

According to a 2017 study published in *Psychiatric Services*, only 12.4 % of adults in state prisons charged with violent gun offenses had a history of psychiatric hospitalizations.²¹ Therefore, there must be other causes for gun violence. Dr. Stone’s research also in-

licated that shooters with a mental illness are not typically on anyone's radar before they commit the crime.¹⁹ He referred to three of the most dramatic mass killings with people who had diagnosable mental illness. All were young men near 20 years old, with no recorded past psychiatric hospitalization and no compelling reason why they should not be able to buy a gun. The three men include Adam Lanza, who killed 28 people (including his mother and then himself) at Sandy Hook Elementary School, James Holmes who killed 12 people in a movie theater in Colorado, and Jared Lee Loughner who killed six people in Tucson.¹⁹

Adam Lanza had been diagnosed with Autism Spectrum Disorder, anxiety, and Obsessive Compulsive Disorder, yet mental health professionals who worked with Lanza when he was younger stated that none of these diagnoses, nor their sessions with him, held signs that would have predicted this future behavior.²² He however had not received mental health support in the recent years before the shooting. The Office of the Child Advocate (OCA) maintains that it was multiple, interrelated issues that led to his actions, including "loss of school; absence of work; disruption of the relationship with his one friend; virtually no personal contact with family; virtually total and increasing isolation; fear of losing his home and of a change in his relationship with Mrs. Lanza, his only caretaker and connection; worsening OCD, depression and anxiety; profound and possibly worsening anorexia; and an increasing obsession with mass murder occurring in the total absence of any engagement with the outside world."²² The OCA concluded that Adam Lanza increasingly lived in an alternate universe in which ruminations about mass shootings were his central preoccupation.²²

Psychiatric Drugs and Warning Labels about Side Effects

The Citizens Commission on Human Rights (the Mental Health Watchdog) made up of doctors, scientists, psychologists, and others, reported that there have been over 25 international drug warnings on psychiatric medications related to side effects such as mania, aggression, and violence.²³ However, despite many shootings being connected to psychiatric drug use, the federal government has not required any investigations into the possible link between violence and psychiatric drugs. They also shared that the news media had reported that 35 school shootings/or related violent activities were committed by someone on or withdrawing from psychiatric drug use.²³ These violent activities resulted in 79 people killed with 169 wounded. The US FDA's MedWatch reported that over an eight-year period, just under 15 000 reports were

made regarding the violent side effects of psychiatric drugs.²³ This included, "1531 cases of homicidal ideation/homicide, 3287 cases of mania, and 8219 cases of aggression." It is important to note that the FDA acknowledges that less than 1% of serious activities are ever conveyed, so these numbers are low estimates.²³

In 2017, the FDA added to the warning label of long-acting amphetamine (Dyanavel XR, for ADHD) that this medication may: "Exacerbate symptoms of behavior disturbance and thought disorder in patients with a preexisting psychotic disorder...Induce a mixed or manic episode in patients with bipolar disorder...Cause psychotic or manic symptoms, eg, hallucinations, delusional thinking, or mania in patients without prior history of psychotic illness or mania."²⁴

In 2013 the Therapeutic Goods Administration in Australia warned that atomoxetine (Strattera) may cause suicidal ideation and behavior in addition to a variety of other side effects including hostility, aggression, akathisia, and mania.²⁵

In 2013 in the US, the FDA added several side effect updates for the medication desvenlafaxine (Pristiq) including interstitial lung disease, serotonin syndrome, activation of mania/hypomania, and seizures.²⁶

In 2012, the US added to amphetamine/dextroamphetamine (Adderall XR) warning label the following possible reactions: psychotic episodes at recommended doses, aggression, anger, and logorrhea (excessive/incoherent talkativeness).²⁷

In Japan in 2009, there were reports of people who had been taking antidepressant medication experiencing increased hostility and occasionally committing violent acts.²⁸ After investigating, the Japanese Ministry of Health, Labor and Welfare altered the warning labels to note that they could not rule out a causal relationship between these medications and hostility, aggression, etc.

In the US in 2005, the FDA altered the warning label of venlafaxine (Effexor XR) to include various effects including adverse events associated with treatment discontinuation, panic disorder, and homicidal ideation.²⁹

In 2004 Health Canada issued stronger warnings on antidepressants, which indicated potential side-effects could include impulsive or disturbing thoughts that could involve self-harm or harm to others.³⁰

While the FDA has made stronger warnings on some medications, some specialists indicated that these warnings mostly help shield companies manufacturing the SSRIs but physicians could be held liable if they ignore them,³¹ or if they do not have "informed

consent” from their patient regarding the side effects of medications.

How Drug Companies Report Side Effects: Example of Lurasidone (Latuda)

Side effects should be explored in those who take medications and also in the control groups that are taking a placebo during a research study. According to the label, lurasidone is a medication for the treatment of depression in bipolar disorder.³² Sunovion, the company making this drug, conducted research and compared the adverse effects in comparison with a control group. Suicidal ideation/behavior per 1000 patients revealed that in the clinical group taking lurasidone, the number of patients with suicidality was 14 more than the placebo/controlled group in patients 18 years or younger. The clinical group of those between 18 and 24 years old had five more patients with suicidal thoughts/behavior incidents than the control group. Surprisingly from age 24 to 64 years old, the clinical group had one fewer patient with suicidality than the placebo group. For patients over 65 years old, the clinical group had six fewer patients than the control group with suicidality.³²

Agitation was another side effect. With the control group, 4% of the patients experienced agitation, and 3% – 10% of patients taking between 20 mg – 160 mg of the medication experienced agitation. In regards to akathisia, only 3% of the control group experienced this side effect. However, in the clinical group 6% – 22% of patients taking 20 mg – 160 mg experienced akathisia.³²

Legal Aspects of Psychiatric Medications and Drug Companies

Healy et al reviewed what clinical trial data was available on the antidepressants paroxetine and sertraline (Zoloft).³³ They also examined drug safety trials of paroxetine and fluoxetine and focused on a medico-legal cases connected to antidepressants and violence. It is necessary to note that David Healy has a competing interest. He has received research support from Eli Lilly, the company that produces fluoxetine, and has been an expert witness for most major pharmaceutical companies on cases involving antidepressants and suicide or violence. He has stated that in at least 100 cases, antidepressants were unlikely to be casually involved.³³

A substantial case which impacted what information pharmaceutical companies were required to release to the public involved Joseph Wesbecker.³³ In 1989 he killed eight people, injured 12 others, and then killed himself. He had been taking fluoxetine for four weeks prior. Legal action was taken against the

company creating this drug, Eli Lilly, and eventually the case was tried and settled. However, as part of this settlement, drug companies need to reveal information about drug-induced activation.³³

In 2005, an internal 1985 Eli Lilly document was made public which indicated that benefits of fluoxetine were less than the risks.^{31,34} Such documents were released to the public as part of the settlement in the Wesbecker legal case. This internal document from Eli Lilly illustrated that the company had had information from 15 years prior which showed patients on fluoxetine were significantly more likely to commit suicide and demonstrate hostility than patients on other antidepressants.³⁴ The *British Medical Journal* reported that these documents were missing from the Wesbecker murder case that was 10 years old which had been sent to the FDA for review. “Lilly initially won the case, but was later forced to admit that it had made a secret settlement with the plaintiffs during the trial, which meant that verdict was invalid,” the journal said.³⁴

Other cases have since been made that bring attention to the possible connection between antidepressants and violence. Furthermore, regulatory authorities are required to warn doctors about risks related to suicidality, specifically in the beginning stages of taking drugs; if the dose is changed; or as a symptom of withdrawal.³³ In regards to agitation and aggression as side effects of SSRIs, it is also consistent with Eli Lilly’s animal studies. In this study, previously friendly cats were given fluoxetine and started growling and hissing.³¹

Prozac Survivors’ Support Group

The International Coalition for Drug Awareness, in cooperation with the Prozac Survivors’ Support Group, created a website which includes several thousand violent incidents associated with the SSRI medication (www.ssristories.com/index.php).³¹ A review of several incidents includes multiple school shootings which document that the perpetrators were on medications such as fluoxetine, sertraline, fluvoxamine, citalopram (Celexa), and paroxetine. Drug companies defended their medication by saying, “The problem is that depression is unequivocally and substantially associated with suicide and selfharm.” The legal defense of Eli Lilly was that any suicides are caused by the condition (depression), not by the medication.³¹

In his article about SSRI drug risks vs benefits, Kaufman reported on 10 cases involving SSRIs (paroxetine, sertraline, and fluoxetine), which set a precedent that SSRIs can be named as a cause for murder, and drug makers may be held liable.³¹ There was the case

of an Australian (David Hawkins) who had been using sertraline, who was found temporarily insane and thus escaped a murder charge. SmithKline Beecham had to pay out \$6.4 million when a jury declared that a murder/suicide was attributed to the usage of paroxetine. Other cases involving these SSRIs resulted in suspended sentencing and an insanity verdict, though one murder case did result in a guilty verdict and life sentence. As the Kaufman stated, "While correlation does not prove causation, and results of court trials are not medical science, the data for suicide are solid, and the association of murder with simultaneous suicide is very suggestive."³¹

Reviewing the Literature Regarding Suicide/Violence and Psychiatric Medications

Sharma et al (2016) conducted research on the subject of suicidality and aggression during antidepressant treatment, reviewing 70 trials within the US and abroad.³⁵ There are conflicting reports regarding the connection between antidepressants and aggressive behavior, and more systematic research is needed.

In the UK, research looking at data from the Medicine and Healthcare Products Regulatory Agency (MHRA) did show a rise of hostility in adolescents³⁶ and illustrated that antidepressant medication was disproportionately connected to instances of violence which included murder.³⁷ Court cases involving mass shooters, many of whom had been taking antidepressants, have often shown leniency with a not-guilty verdict due to drug-induced insanity. One condition experienced by some taking antidepressants is akathisia which is a form of restlessness, causing extreme agitation, which may impact the risk of suicide or violent behavior.³⁵

Reliable data are necessary to create a balanced understanding of medication impact. Even after reviewing the clinical study reports, Sharma et al found that the true number of serious harms from antidepressants is unclear.³⁵ The trials were weak in their design and reporting, which would likely cause the numbers to be underestimates. Additionally, they indicated that the reports from the Eli Lilly website were unreliable and lacked complete information (except for mortality). Acknowledging this information, when compared to other studies it was confirmed that there was an increased risk of suicide in children and adolescents.³⁸

Additional studies done in Sweden showed an upsurge of violent crime for young adults when taking antidepressants. GlaxoSmithKline sent letters to doctors notifying them of the increased potential for harm in young adults and that for all adults with depression, suicidal frequency increased for those pa-

tients on paroxetine.³⁹ The overall recommendation of these authors is minimal use of antidepressants for young adults, as the risks seem to outweigh potential benefits.³⁵

How Medications Cause Violence

Healy et al (2006) indicated that certain regulations in Canada include warnings not only of self-harm due to antidepressants, but also of harm to others.³³ As of 2004, included in the US labels for antidepressants, are warnings regarding, "anxiety, agitation, panic attacks, insomnia, irritability, hostility, aggressiveness, impulsivity, akathisia (psychomotor restlessness), hypomania, and mania."³³

However, while there are these warnings, there are little data on the actual link between antidepressants and violence. Research conducted by Moore et al on 31 drugs, identified over 1500 cases of violence, providing evidence that a small group of drugs can be connected with acts of violence as an adverse side effect.³⁷ Those in the study included varenicline (for smoking cessation), 11 antidepressants, six sedative/hypnotics, and three medications for ADHD. Varenicline and serotonin reuptake inhibitors were shown to be the most consistently implicated medications. Further studies are needed to continue to systematically evaluate this side effect.³⁷

In regards to mechanisms of SSRIs causing violence or suicide, there has been no scientific explanation so far. However, Healy et al brought up several possible explanations.³³ These include akathisia (also known as restless leg syndrome), where the person develops high restlessness, insomnia, and tension as a side effect of medication. They may have motor restlessness and there are some indications that akathisia may be linked to both suicide and violence. The link between akathisia and violence/homicide due to side effects of antipsychotic medication has been previously reported.³³

Another possible cause is related to mania and psychosis. The authors indicated there may be a link between mania, psychosis, and violence. They explained that the labels for most SSRIs side effects now indicate the possibility of developing psychosis and hallucinations. The development of a psychotic episode (eg, paranoid delusion) or command hallucination has been linked to suicidal and homicidal ideation. Antidepressant medications have a side effect, although possibly rare, of delirium, confusion, and psychosis. Sometimes antidepressants overshoot and rather than bring depression to the normal level, the person becomes manic instead.³³

The authors indicate that somnambulism (sleep walking) may be relevant to violence and murder. Legally it can be used to defend someone, because during sleep walking, one is not aware of his/her actions. The authors indicate several reports that explain sleep walking in those who previously did not have this problem but developed it after taking paroxetine.³³

Mental Illness and Gun Violence

Jeffery Swanson, PhD from Duke University shares that while the act of committing a mass shooting in public which kills many strangers speaks to someone with an unhealthy mind, that person is atypical for two reasons.⁴⁰ One is that most people with serious mental health concerns are not violent and are more likely to be victims of violence. Two, the majority of people committing gun violence do not have a serious mental illness.

Research from 2015⁴⁰ showed that of the approximate 36000 gun related deaths in this country, 61% were suicide, while 36% were homicides, 2% were related to the police, and 1% were accidental. Compared to other industrialized countries, assaults in the US are three times more likely to utilize a gun. The ratio of gun ownership is also dramatic with 97 guns per 100 people in the US vs 17 guns per 100 people in these same countries. While the US crime rate is about average, our homicide rate is several times greater than other industrialized countries which speaks to the unique relationship we have with guns. Therefore, while serious mental illness can contribute to gun suicide, the same connection cannot be made with general interpersonal violence.⁴⁰

Conclusion

Nearly 75 school shootings have occurred since the 2012 Sandy Hook shooting in Newtown, CT, and mental illness is often reported as a major factor.¹⁸ However, as the *Clinical Psychiatry News Journal* reported (October 26, 2018), only 25% of mass shooters have an actual mental health diagnosis, and of those who do, it is not clear that this is what motivated their crime. Most profiles of mass shooters do not include mental illness.¹⁸

Are people with a mental illness more violent than those without psychiatric disorders? Many organizations have declared people with mental illnesses are more often the victims of violence vs the perpetrators. However, people who are depressed may have the tendency to become suicidal more often than homicidal. In regards to psychiatric medication, the research indicates the possibility of suicidality as a side effect for those younger than age 24. One needs to be aware that nonpsychiatric medication may cause suicide or ag-

gression. A number of combat veterans after returning home have committed suicide or experience aggressive behavior. Families of veterans or their lawyers at times, blamed their medications, such as antimalarial or antismoking medication as being the cause of this behavior.⁴¹ Human behaviors are multifactorial and the brain is a very complicated computer, which can make it difficult to understand cause and effect relationship in human behavior.

Multiple assessments indicate that people with mental illnesses account for only 3% – 5% of violent crimes. However, politicians continue to speak out publicly and incorrectly, tying mass shootings to mental illness. President Trump referred to Stephen Paddock, who shot nearly 600, killing 58 people in Las Vegas, as “a sick, demented man.”⁴² And House Speaker Paul Ryan stated, “One of the things we’ve learned from these shootings is often underneath this is a diagnosis of mental illness.” Yet there were no indications Paddock had any mental health issues nor criminal history, and the people who knew him were shocked. He was a successful businessman and could have financed mental health care for himself. The advantage of putting the blame on mental illness is that it distracts from a more important and relevant conversation on gun control.⁴²

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